UNIT 5 BENCHMARK

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| **UNIT ASSESSMENT ALIGNMENT GUIDE** | | | | | |
| **Learning Goal #** | **Learning Goal** | **Aligned Item #’s** | **Points Correct** | **Points Possible** | **Grade**  (%) |
| **SPI 1.3** | **Apply properties to evaluate expressions, simplify expressions, and justify solutions to problems.** | **4, 22** |  | **2** |  |
| **CFU 1.9** | **Identify and use properties of the real numbers (including commutative, associative, distributive, identity )** | **8, 20, 21** |  | **3** |  |
| **SPI 2.3** | **Describe and/or order a given set of real numbers including both rational and irrational numbers.** | **1, 2, 13** |  | **3** |  |
| **CFU 3.3** | **Justify correct results of algebraic procedures using extension of properties of real numbers to algebraic expressions** | **3, 10** |  | **2** |  |
| **SPI 1.2** | **Write an equation symbolically to express a contextual problem.** | **9, 35, 38** |  | **3** |  |
| **SPI 3.5** | **Write and/or solve linear equations, including those containing absolute value.** | **7, 12, 25, 37** |  | **4** |  |
| **SPI 4.1** | **Develop and apply strategies to estimate the area of any shape on a plane grid.** | **26, 34** |  | **2** |  |
| **SPI 3.5** | **Write and/or solve inequalities, and compound inequalities including those containing absolute value.** | **5, 14, 24, 27, 36, 40, 41** |  | **7** |  |
| **SPI 3.8** | **Determine the equation of a line and/or graph a linear equation.** | **18, 30, 42** |  | **3** |  |
| **SPI 1.6** | **Determine and interpret slope in multiple contexts including rate of change in real-world problems.** | **6, 32** |  | **2** |  |
| **SPI 3.9** | **Solve systems of linear equation/inequalities in two variables.** | **11, 19, 33** |  | **3** |  |
| **SPI 3.7** | **Determine domain and range of a relation, determine whether a relation is a function and/or evaluate a function at a value.** | **15, 16, 31, 43** |  | **4** |  |
| **SPI 3.6** | **Interpret various relations in multiple representations.** | **28, 29, 44, 45** |  | **4** |  |
| **SPI 5.1** | **Interpret displays of data to answer questions about the data set(s) (OUTLIERS)** | **17, 23** |  | **2** |  |
| **SPI 5.3** | **Using a scatter-plot, determine if a linear relationship exists and describe the association between variables.** | **39** |  | **1** |  |
| ***TOTAL:*** | | |  | **45** |  |

1) Which shows the numbers ordered from least to greatest?

A) , , 1, 1.5

B) , 1, 1.5,

C) , 1.5, 1,

D) , 1, 1.5,

2) Which is a rational number?

A)

B) 10.53243234293….

C) 2π

D) none of these

3) What is the value of the expression when a = and c = -3

+ ac2

A) -7

B) 2.75

C) 6.5

D) 4.5

4) *Simplify:* 6m + 3(-5n – 16) – 4(1 + 5m) + 10n

A) 26m + 25n – 52

B) 26m – 5n – 52

C) -14m + 25n – 52

D) -14m – 5n – 52

5) What is the solution to this inequality?

6m – 25 < 2m – 14

A) m < 1

B) m < -9

C) m < 2

D) m < -4

6) Brittany is selling cookies to raise money for her senior trip. Her total earnings, y, are represented with the equation y = 4x + 10, based on selling x cookies. What does the slope of this equation represent?

A) The number of cookies Brittany sells

B) The number of cookies Brittany needs to sell

C) The amount of money Brittany sells each cookie for

D) The total amount of money Brittany makes

7) *Solve:* 10 = -7 + b

A) b = -3

B) b = 3

C) b = -17

D) b = 17

8) Brooke wants to make 400 copies of the ad for her show. At Kinkos, it costs $0.25 for color copies and $0.10 extra for the glossy paper. She knows the equation 400($0.25 + $0.10) will give her the cost of his flyers. She knows this will give her the price because it is the same as calculating 400($0.25) + 400($0.10). What property did Brooke use to justify that these two expressions represent the same cost after the discount.

A) Associative Property of Multiplication

B) Commutative Property of Addition

C) Distributive Property of Multiplication

D) Identity Property of Addition

9) Donaldo and Charvez are competing to see who can score the most layups

because Charvez thinks he is a better basketball player than Donaldo. Half-

way through the competition, Charvez has made 5 layups less than

Donaldo. If *c* is used to represent the number of layups Charvez has made

and *d* is used to represent the number of layups Donaldo has made, which of

the following equations could be used to calculate the number of layups

Charvez has made?

A) c = 5d

B) c = d – 5

C) c = 5 – d

D) c = d + 5

10) What is the value of the expression when m = -2 and n = 1/3?

2

+

A) -6.06

B) 6

C) -0.23

D) -0.89

11) *Solve:* 6x + 6y = 18

-5x – 2y = 6

A) (4, 7)

B) (-4, 7)

C) (-4, -7)

D) (4, -7)

12) *Solve:*  7.5(1 – 7.4a) = 29.7

A) a = 7.2

B) a = 6.1

C) a = -0.4

D) a = -13.9

13) Which is correctly ordered from greatest to least?

A) -15/5 , - π, -, - 3.8

B) -15/5 , - 3.8, - π, -

C) - 3.8, -, - π, -15/5

D) none of these

14) Which statement represents the solution to this compound inequality?

-9 + 5n < -49 or 5 – 2n < 3

A) k < -8 or k > 1

B) k > -8 or k < 1

C) -8 *<* k < 1

D) -8 > k > 1

15) What is the range of the function f(x) = -2x2 + 5x – 3

|  |  |  |
| --- | --- | --- |
| x | f(x) | A) {-33, -52, -75, -102} |
| -3 |  | B) {0, 9, 22, 39} |
| -4 |  | C) {-36, -55, -78, -105} |
| -5 |  | D) {3, 12, 25, 42} |
| -6 |  |  |

16) Which of the following sets of ordered pairs could represent a function?

A) {(0, 11), (-2, 4), (6, 10), (-2, 6), (8, 3)}

B) {(1, 1), (2, 3), (7, -8), (-4, 6), (10, -3)}

C) {(16, 3), (-9, -4), (-6, 1), (-9, 6), (3, 3)}

D) all of the above

17) J’vonne collected data on how many times she turned in homework every

week. The graph below shows her results. Which of the following times

turning in homework could be considered an outlier?



Times Turning

in Homework

A) 2

B) 3

C) 4

D) 5

Weeks

18) Which of the following equations represents the graph of the line below:



A) y = x + 1

B) y = x + 1

C) y = - x + 1

D) y = - x + 1

19) *Solve:* 4x – 5y = 10

5x – 4y = 8

A) (2, 0)

B) (-2, 0)

C) (0, 2)

D) (0, -2)

*Use the following information for questions 20 and 21:*

Given: (5x + 8) + 8y = 12

Step 1: 5x + (8 + 8y) = 12

Step 2: 5x + (8y + 8) = 12

20) Which property justifies moving from the Given to Step 1:

A) Commutative Property

B) Associative Property

C) Distributive Property

D) Identity Property

21) Which property justifies moving from Step 1 to Step 2:

A) Commutative Property

B) Associative Property

C) Distributive Property

D) Identity Property

22) *Simplify:* -2c2 – 4cd + c+ c(3 – d)

A) -1c2 – 5cd + 3c

B) -1c2 – 3cd + 4c

C) -2c2 – 3cd + 3c

D) -2c2 – 5cd + 4c

23) Ricky collected data on his daily weight-training workouts. The graph below

displays his results. What number of pounds bench-pressed could be

considered an outlier?



Pounds

Bench-Pressed

150

100

50

A) 125

Days

B) 100

C) 75

D) 50

24) Which statement represents the solution to this compound inequality?

7p – 4 > 17 > 2p + 1

A) 3 < p < 8

B) 3 > p > 8

C) p > 3 or p < 8

D) p < 3 or p > 8

25) What are the solutions to the equation below?

|-4 – 2k| + 2 = 4

A) {-3, -1}

B) {3, -1}

C) {3, 1}

D) {-3, 1}

26) Estimate the area of the figure below:

A) 10

B) 13

C) 17

D) 21

27) Which could be a possible solution for the compound inequality below?

11 < 7z – 3 < 67

A) 2

B) 7

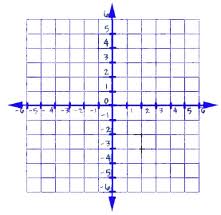
C) 10

D) 13

28) Which of the following functions created the table of values?

|  |  |  |
| --- | --- | --- |
| x | f(x) | A) f(x) = -2x – 4 |
| -2 | 0 | B) f(x) = -5x – 10 |
| -1 | -5 | C) f(x) = -3x + 5 |
| 1 | -15 | D) f(x) = -7x + 2 |
| 2 | -20 |  |

29) Which of the following represents the function below:



A) y = -2x + 5

B)

|  |  |
| --- | --- |
| x | y |
| -2 | 1 |
| -1 | 5 |
| 1 | -1 |
| 2 | -2 |
| 0 | 4 |

C)

-2 1

-1 0

0 -1

1 -2

2 -3

D) {(-2, 1), (-1, 5), (1, -1), (2, -2), (0, 4)}

30) Which of the following equations represents the graph of the line below:



A) y = 0.25x – 3

B) y = 0.25x + 3

C) y = 4x – 3

D) y = 4x + 3

31) Which of the following graphs is NOT a function?



A) B)



C) D)

32) Emion works as a salesman at Best Buy. The equation y = 20x + 70

represents his total daily income, y, based on selling x electronics. What is

represented by the slope in this equation?

A) The total amount of electronics Emion sells each day

B) The total amount of money Emion earns each day

C) The amount of money Emion makes for each electronic he sells

D) The amount of money Emion would make if he sells no electronics

33) *Solve:*  x + 7y = 13

-6x – 4y = -2

A) (-1, 2)

B) (1, 2)

C) (1, -2)

D) (-1, -2)

34) Estimate the area of the figure:

A) 11

B) 17

C) 23

D) 26

35) Kenneth and Greg decide to start a yard work service over the summer. They have to pay $15 each day to use their neighbor’s lawnmower. How will Kenneth (k) and Greg (g) figure their profits?

A) p = k + g + 15

B) p = 15 – k + g

C) p =

D) p = k + g – 15

36) Which could *NOT* be a possible solution for the compound inequality below?

3 + 10r > 53 or r - 4 ≤ -1

A) 4

B) 3

C) 8

D) 10

37) *Solve:* -4(-2 + 8n) = -3(1+ 7n)

A) n = 0.21

B) n = -1

C) n = 1

D) n = 12

38) Nijal wants to rent a car for a weekend trip to Atlanta. The rental car

company is running a special deal of a $10 flat fee plus $0.35 for each mile.

Nijal must also pay the insurance company $0.20 for each mile. Which

equation represents the total cost, *t* he must pay to rent the car and drive it *m*

miles?

A) t = 10 + 0.35 + 0.20m

B) t = 10m + 0.35 + 0.20

C) t = 10 + (0.35 + 0.20)m

D) t = 0.35 + (10 + 0.20)m

39) *Which of the following sets of data has a negative linear relationship?*

**

A) B)



C) D)

40) What is the solution for the following inequality?

|-8x – 1| > 17

A) x > - or x < 2

B) x < - or x > 2

C) - > x > 2

D) - < x < 2

41) What is the solution for the following inequality?

|6y – 9| – 2 < 25

A) y > -3 or y < 6

B) y < -3 or y > 6

C) -3 > y > 6

D) -3 < y < 6

42) Which of the following represents the graph of -2x – 6y = 18



A) B)



C) D)

43) Which of the following is not a representation of a function:

A) B)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 1 | -2 | -3 | 7 | 4 | -2 |  | X | -1 | -2 | -3 | -4 | -5 | -6 |
| Y | 4 | 7 | 9 | -1 | 3 | 8 |  | Y | -2 | 4 | -6 | 5 | -1 | 3 |

C) D)

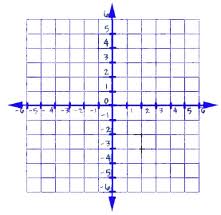
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 5 | 6 | 9 | -3 | 2 | 1 |  | X | 6 | -4 | 3 | -3 | 2 | 1 |
| Y | -4 | 6 | 7 | 10 | -4 | 3 |  | Y | -2 | 1 | 7 | 9 | 10 | 1 |

44) Which of the following tables was created using the function f(x) = -7x + 1

A) B) C) D)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| x | f(x) |  | x | f(x) |  | x | f(x) |  | X | f(x) |
| 1 | 0 |  | 3 | -20 |  | 2 | -13 |  | 5 | 30 |
| 2 | 17 |  | -1 | -10 |  | -3 | 22 |  | 0 | 20 |
| -1 | 25 |  | -2 | 0 |  | -4 | 29 |  | -5 | 10 |
| -2 | 32 |  | -5 | 10 |  | -6 | 43 |  | -10 | 0 |

45) Which of the following does *not* represent the function below:



A) y = -2x – 3

B)

|  |  |
| --- | --- |
| x | Y |
| -3 | 3 |
| -2 | 1 |
| 0 | -1 |
| 2 | 1 |
| 3 | 3 |

C) D) {(-3, 3), (-2, 1), (0, -1), (2, 1), (3, 3)}

-3

-2 3

0 -1

2 1

3

46-50) ***Short Answer****:*

a) |5x – 1| – 12 < 10 b) *Solve:* 6x + y = -8 c) -1(x +10) = 3(2x – 5)

7x + 5y = -17

Choose a problem from above and write how you would explain to a new student how to solve each problem. Don’t forget each step! (If you need more room, use a separate piece of paper.) Then create your own problem.

Problem#: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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My New Problem:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_